

### REMARKS

First of all, the applicant and undersigned wish to thank Examiner Eng for the courtesy of the phone interview conducted on January 21, 2004 regarding the subject matter of this response.

Certain claims stand rejected, provisionally, under 35 USC 101 as claiming the "same invention," based on patent application number 09/811, 588, which is the parent of the instant CIP application. In view of the parent application, other claims stand rejected, provisionally, under the judicially created doctrine of obviousness-type double patenting." The applicant of the instant application, which is the inventor and owner named in the parent application, has abandoned the parent application. The applicant has received a Notice of Abandonment from Examiner Eng mailed on November 24, 2003. from the USPTPO for failure to respond to an issued office action. To the extent the applicant has the right to revive the parent application, it is hereby waived and the parent applicant is hereby expressly abandoned for the benefit of the instant CIP application. Therefore, it is believed that the basis for the aforementioned claim rejections (cited in paragraphs 2-5 of the Action has been overcome.

Claims 1-21 stand rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. In essence, the Action states that the description read in view of Figure 2 of the Specification would not enable one of ordinary skill in the art to make and use the present invention. For the reasons given below, the applicant hereby disagrees.

Throughout, the specification is replete with the word "exemplary embodiment." See the brief description of FIG. 3, FIG. 4, and FIG. 5, for example. Thus, one of ordinary skill in the art would clearly realize that the described embodiments are simply examples of the embodiments of the claimed invention. One of ordinary skill in the art would recognize that the frequency table shown in Figure 2, is merely a representative of various tables that may be used in the operation of the claimed invention. Such various tables may differ with different languages or using different samples. As the specification makes clear in page 8, lines 21-22, "[e]ach letter is a component of an alphabetical system that is represented by letters of any language, arranged in order fixed by custom."

Thus, one of ordinary skill would readily recognize that the present invention in no way is dependent on any given table. Rather the invention depends on the existence of the statistical distribution for symbols.

For example, a frequency table generally accepted by the body of research is included in, Mayzner, M.S. and M.E. Tresselt, Tables of single-letter and digram frequency counts for various word-length and letter-position combinations. *Psychonomic Monograph Supplements*, 1965. 1(2): p. 13-32.

Letter	% Freq.
E	10.8
T	8.0
A	6.6
H	6.3
O	5.4
S	4.9
N	4.9
R	4.8
I	4.2
L	3.6
D	3.5
U	2.5
W	2.3
M	2.0
C	1.9
G	1.8
Y	1.7
F	1.5
B	1.3
P	1.2
K	0.9
V	0.8
J	0.1
X	0.1
Q	0.1
Z	0.1

This table is consistent with an embodiment of the invention described in the specification. Accordingly, given *any* frequency table of symbols, the present invention describes how to assign the most-frequently letters and less frequently-occurring letters to enable any person skill in the art to make and use the invention.

Claims 22-24 stand rejected under 35 USC 112, second paragraph, for omitting essential cooperation between claimed elements. As best understood, the Action argues that the omitted relationship is “a technique for entering letters using keypads.” The applicant respectfully disagrees.

Before addressing the claim rejection, the applicant would like to point out that there seems to be typos in claims 23 and 24. These claims have been amended to be dependent on claim 22 to fix these inadvertent errors.

Claim 22 requires a keypad for entering English letters, comprising:

(a) an array of nine keys numbered key 1 through key 9, wherein

- key 1 is assigned to letter A;
- key 2 is assigned to letter N;
- key 3 is assigned to letter I;
- key 4 is assigned to letter H;
- key 5 is assigned to letter O;
- key 6 is assigned to letter R;
- key 7 is assigned to letter T;
- key 8 is assigned to letter E; and
- key 9 is assigned to letter S.

The pre-amble of rejected claims 22-24 reads “[a] key pad,” which is *an apparatus* for key entry, not a *method* for “entering letters.” As is well known the claim limitations of an apparatus claim recite structural elements, not acts that perform functions. In claim 22, the keypad comprises structural elements in terms of “an array of nine keys,” with each key being numbered as key 1 through key 9, where each is assigned a specified letter. Therefore, contrary to what is stated in the Action, the content of the claim does not relate to assigning alphabetical letters to key 1 through key 9. In fact a limitation that requires user interaction with the keypad would be unduly limiting,

because the claims enabled by the specification and definite as written. The specification clearly shows the claimed arrangement in Figure 8. There is ample support in the specification in terms of the material and the key arrangement to enable one of ordinary skill in the art to make and use the subject matter of claim 22. Claim 22 also clearly defines the limitations in structural terms. Because claims 22-24 are apparatus claims, there is no reason for it to cover a method for entering English letters, as suggested by the Action. As such, the claims 22-24 clearly define a novel key pad that meets all the requirements of 35 USC, 112, second paragraph.

Claims 1, 4-6, 11-14, 16 and 19 stand rejected under 35 USC 102(e) as being anticipated by US Patent No. 6,231,252 issued to Kitamura (Kitamura.) In support of the anticipation rejection, the Action merely cites Figure 7 of Kimura noting that “while Kitamura also teaches the single key pressing operation can be defined as an operation in which the same key is pressed twice (col. 6 lines 57-63). This is enough to met [sic] unduly broad claim.”

It is well settled that a prior art anticipates a claim only when each and every one of the claimed limitations are found in a single reference. Because the Action has not met this clearly established requirement by identifying how each and every one of the claimed limitations are disclosed in Kitamura, the applicant respectfully traverses all anticipation claim rejections that are based on this reference.

For example, claim 1 requires “an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work.” Although Kitamura discloses a keypad having an array of keys being assigned letters of alphabet, unlike the claimed invention, each key in the disclosed array is not assigned based on the frequency of occurrence of alphabets. Thus, Kitamura fails to disclose this expressly recited claim limitation.

In fact, Kitamura’s Figure 7 is not arranged based on letter frequencies, rather by letters belonging to a group of vowels or consonants. For example, group 10 in Fig 7 is based on the arrangement of the vowels based on their alphabetical order not their appearance frequency or statistical data. Similarly, group 30 in Fig 7 of Kiamura is primarily based on their alphabetical order of these pairs of consonants on each key in group 30. In contrast, the claimed invention requires the keys in a key array be assigned

letters bases on occurrence frequency, e.g. the most-frequency-occurring letter and a less-frequently-occurring letter. The key array shown in Figure 7 of Kitamura does not teach or suggest the claimed arrangement that requires each key in the array be assigned letters based occurrence frequency.

Kitamura's Figure 7 and the part of the specification cited in the Action (col. 9 line 30 through col. 10 line 65) require the separation of vowels and consonants and their separate grouping and treatment. Kitamura's Figure 7 and the part of the specification cited by the examiner (col. 9 line 30 through col. 10 line 65) require that each vowel key occupy no other letter. None of cited section in the Action disclose an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work.

Claim 11 has been amended to more clearly focus on the scope of the present invention by requiring "an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work."

Moreover, claim 1 requires the alphabetical system to comprise "at least one most-frequency-occurring letter that is entered by more than one key activation associated with the same key and at least one less-frequently-occurring letter that is entered by at least one key activation associated with each of at lest two different keys." Claim 11 also requires claimed limitations relating to "the most-frequency-occurring letter" and a "less-frequently-occurring letter."

The Action refers to Kitamura's col.6 lines 57-63. These lines are part of a larger section (Col. 6 lines 50-67) which distinctly describes a *time-dependent* key pressing action required by Kimura to distinguish between a rapid succession of pressing of the same consonant key and that of pressing it again after a prescribed amount of time is elapses. Contrary to required limitations of claim 1 and 11, Kiamura does not teach suggest the entry of the "most frequently occurring letter" by two key activation of the same key and the entry of the "less-frequently-occurring letter" by key activation of at least two different keys. Unlike the claimed invention, Kitumara's assignment is primary based on the distinction and grouping of letters based on them being vowels or consonants. Some of the keys in Kitumara's Figure has only one letter assignment, and

that letter is sometimes most frequent, sometimes less frequent. Thus, there is no teaching or suggestion regarding two-key activation entry “most frequently occurring letter” by the same key and sequenced activation of two different keys for the “less-frequently-occurring letter,” as required by the claimed invention.

As stated above, the Kitamura is clearly distinguishable from the broadest rejected independent claims 1 and 11, because it does not teach or suggest a number of claimed limitations. Therefore, it is respectfully submitted that all other dependent claims, which incorporate intervening claim limitations, are distinguishable in view of Kitamura, alone or in combination with other references has also been overcome.

Claims 25 and 26 stand rejected under 35 USC 102(b) as being anticipated by US Patent No. 4,008,793 issued to Terracina (Terracina).

Claim 25, as amended, requires “an array of keys having at least one key assigned to a data symbol in accordance with a position array that has defined position elements, including at least one data symbol is entered by key activation of a key and a non-adjacent key, wherein at least one data symbol is entered by key activation [sequence] of a key and a non-adjacent key that is pointed to by a peripheral position of a the key.”

Terracina discloses a typewriter using an alphabet in which the letters are obtained from a single type of sign. The machine is capable of being equipped with teletransmission and telereception devices and means for use by the blind. As such, Terricina’s keyboard is completely combinational and does not work if sequence of keys is used. The claimed invention requires the use sequence of keys, or touching and un-touching at different areas (sliding) actions. Thus, it is believed that the newly amended claim requirement, for activation of a *sequence* of keys clearly distinguishes the independent claims 25, and its dependent claims 26 and 27, from Terracina.

Claims 22-24 stand rejected under 35 USC 103(a) as being obvious over US Patent No. 5,818,437 issued to Grover e. al (Grover e. al).

As clearly described in the specification, the particular and specific assignments of keys in claim 2 (reproduced above) are based on the occurrence frequency of letters of alphabet. There is no teaching or suggestion in Grover et al. to arrange keys on a keypad based on the occurrence frequency of alphabetical letters.

Grover et al. discloses a method of disambiguating ambiguous key entry, with each key having several characters possible, by means of a dictionary lookup. Therefore, the outcome of pressing a single key in Grover is ambiguous, hence cannot be generating a character signal. Grover et al. is also different from the claims 22-24 in that it does not present a key stroking technique for deterministically generating symbols or characters. As depicted in Figure 5. of Grover et al., after the user has pressed a three key activation sequences, depicted on the Figure by three boxes below the display marked with AFG, DHI, and DHI and depicted by three ">" symbols on the screen at the end of the input phrase; "Now is the time for all good men to come to the >>>", the system cannot deterministically generate the correct intended letters intended. Items 501-503 on Fig5 of Grover et al. show the suggestions that the user has to disambiguate.

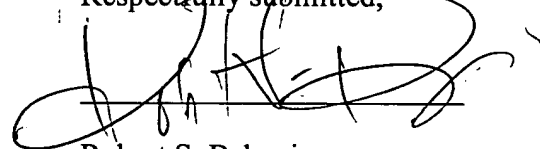
The Action concedes that the key assignment of Grover et al. is different from the claimed invention, but it states that "it is old and well known in the art for rearranging keys assignments depending on user's need." However, the fact that keypads can be arranged based on user need does not teach, suggest or lead to the conclusion to arrange them in a specific manner claimed based on the occurrence frequency of alphabetical letters.

In view of the above amendments and remarks, it is believed that Claims 1-28 of the instant application meet all requirements of patentability and the applicant respectfully request the issuance of a Notice of Allowance in connection with all the claims.

Date:

1/22/04

Respectfully submitted,



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